

# Algebra 1—An Open Course

Version 1.0

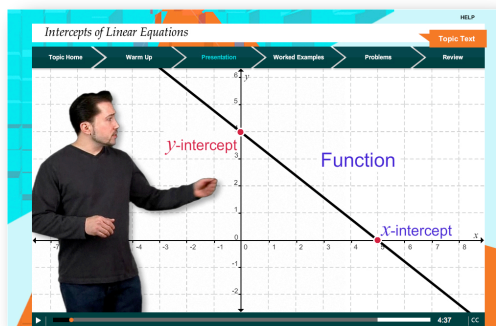
Developed by: Monterey Institute for Technology and Education, with generous funding from The William and Flora Hewlett Foundation

Audience: Middle and High School

## Why NROC?

NROC's high-quality courses are **media-rich**, **adaptable** and **affordable**, a combination of features not readily available from commercial providers. With rich content mapped to state and federal standards, NROC courses can be used with or without a textbook to enhance online, blended and face-to-face learning environments.

*Teach with the Power of Digital Media!*



## Course Description

This two-semester Algebra 1 course has been developed for first-time algebra students with a broad range of ability levels, from remedial to advanced. The content is aligned to all US state algebra frameworks and The Common Core. This course can be used as a stand-alone curriculum or as a supplement to any algebra textbook.

The flexible, learner-centered approach offers a portfolio of learning objects designed to open the door to mathematics concepts, procedures, mathematical reasoning and critical thinking for learners. Students work through activities in the sequence that leverages their own preferred learning strategies while building their 21st century skills.

Learn more about this course at [NROCmath.org](http://NROCmath.org).

## Course Components Include:

- **Warm-ups:** a series of problems to assess prior knowledge and recommend review.
- **Presentations:** a rich-media presentation of the topic concept with illustrated examples.
- **Worked Examples:** narrated step-by-step presentations of a problem being solved.
- **Practice Problems:** symbolic and word, designed in adaptive sets, offer students practice and feedback.
- **Text:** a comprehensive, integrated, interactive textbook reinforces the concepts being taught.
- **Review:** self-test for understanding prior to moving to the next topic.
- **Projects:** promote collaboration in the project-based learning tradition to solve real-world problems.
- **Tutoring Simulation:** offers students directed guidance in problem solving.
- **Puzzles:** give learners a chance to practice what they have learned in a fun, no-fault environment.
- **Assessments:** formative and summative assessments are designed to guide a learner's progress.

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## Semester 1

### Unit 1: Algebra: A New Angle

Algebra: What's It All About  
*Algebra—Everyday and Extraordinary*  
*Algebra—Why and When*  
*Algebra—Approaching Problems*

### Unit 2: Solve Linear Equations

Writing and Solving Equations  
*Solving Equations*  
*Solving Multi-Step Equations*  
*Writing Expressions and Equations*  
*Solving for a Specific Variable*

Absolute Value Equations  
*Absolute Value*  
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### Unit 3: Functions and Patterns

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*Inductive Patterns*  
*Representing Patterns*

Graphing Functions and Relations  
*Representing Functions and Relations*  
*Domain and Range*  
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*Parallel Lines*  
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*Writing, Solving and Graphing Inequalities in One Variable*  
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Solving and Graphing Linear Inequalities in Two Variables

*Solving and Graphing Linear Inequalities in Two Variables*

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*Graphing Systems of Inequalities*

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*Scientific Notation*  
*Simplifying Expressions with Exponents*

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Operations on Polynomials  
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### Unit 11: Rational Expressions and Equations

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